

General

Guideline Title

Guideline for hand hygiene.

Bibliographic Source(s)

Wood A, Conner RL. Guideline for hand hygiene. In: 2016 Guidelines for Perioperative Practice. Denver (CO): Association of periOperative Registered Nurses (AORN); 2016 Sep. p. e27-e48. [85 references]

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

Note from the Association of periOperative Registered Nurses (AORN): The original document provides guidance for hand hygiene and surgical hand antisepsis in the perioperative setting. Hand hygiene is widely recognized as a primary method to prevent health care-associated infections and the transmission of pathogens in the health care setting. Health care-associated infections can result in untoward patient outcomes, such as morbidity and mortality, pain and suffering, longer lengths of hospital stay, delayed wound healing, increased use of antibiotics, and higher costs of care. Thus, prevention of health care-associated infections is a priority for all health care personnel. Hand hygiene and surgical hand antisepsis are effective and cost-efficient ways to prevent and control infections in the perioperative setting.

All perioperative team members should maintain healthy fingernail and hand skin condition.
Perioperative team members should not wear jewelry (e.g., rings, watches, bracelets) on the hands or wrists.

Perioperative team members should perform hand hygiene (Ellingson et al., 2014; World Health Organization [WHO], 2009; Boyce & Pittet, 2002).

Perioperative team members should perform surgical hand antisepsis before donning sterile gowns and gloves for operative and other invasive procedures (Ellingson et al., 2014; WHO, 2009; Boyce & Pittet, 2002; "AST Standards," 2008; Adams, 2010).

A multidisciplinary team should select hand hygiene products to be used in the perioperative setting following an analysis of product effectiveness, user acceptance, and cost (WHO, 2009).

Perioperative personnel should participate in a variety of quality assurance and performance

improvement activities that are consistent with the facility or health care organization plan to improve understanding and compliance with the principles and processes of hand hygiene.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Health care-associated infections, especially surgical site infections

Guideline Category

Prevention

Risk Assessment

Clinical Specialty

Nursing

Surgery

Intended Users

Advanced Practice Nurses

Hospitals

Nurses

Guideline Objective(s)

To provide perioperative registered nurses (RNs) and other perioperative team members with evidence-based practice guidance for hand hygiene and surgical hand antisepsis to promote patient and personnel safety and reduce the risk for health care-associated infections, especially surgical site infections

Target Population

Patients undergoing surgical and other invasive procedures

Interventions and Practices Considered

1. Maintenance of healthy fingernail and hand skin condition
2. Not wearing jewelry (e.g., rings, watches, bracelets) on the hands or wrists
3. Performing hand hygiene
4. Performing surgical hand antisepsis before donning sterile gowns and gloves
5. Selection of hand hygiene products to be used in the perioperative setting

6. Staff participation in quality assurance and performance improvement activities

Major Outcomes Considered

- Surgical site infection (SSI) rates
- Health care-associated infection rates
- Hand bacterial count
- Cultures of anesthesia provider hands, anesthesia environment, and intravenous (IV) tubing
- Hand hygiene compliance
- Effect of skin care products on surgical hand antisepsis
- Glove microperforation rate
- Contamination of operating room services after single or double gloving

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Evidence Review

A medical librarian conducted a systematic search of the databases Ovid MEDLINE®, EBSCO CINAHL®, Scopus®, and the Cochrane Database of Systematic Reviews. The search was limited to literature published in English from January 2010 through September 2015. Between September 2015 and February 2016, the results of alerts established at the time of the initial search were assessed, and the lead author requested additional articles that either did not fit the original search criteria or were discovered during the evidence appraisal process. Finally, the lead author and the medical librarian identified relevant guidelines from government agencies, professional organizations, and standards-setting bodies.

The search was limited to the concept of hand hygiene to the perioperative setting. Hand hygiene search terms included the subject headings *handwashing* and *hand disinfection*, supplemented by the keywords *hand washing*, *handwashing*, *hand hygiene*, *hand antisepsis*, *hand contamination*, and *hand decontamination*. Search terms related to the perioperative setting included the subject headings *operating rooms*, *surgicenters*, *anesthesia*, *perioperative care*, *perioperative period*, *perioperative nursing*, and *operating room personnel* and keywords such as *operating theater*, *surgical suite*, *operating suite*, and *perioperative setting*. To retrieve additional relevant articles, the keywords *surgical*, *preoperative*, *preoperative*, *presurgical*, and *pre-surgical* were combined with the keywords *hand antisepsis*, *wash*, *scrub*, *rub*, and *hand preparation*. Subject headings and keywords for cross-contamination and infection, fingernails and jewelry, skin irritation and inflammation, and specific antiseptic agents and products also were included.

Inclusion criteria were research and non-research literature in English, complete publications, and publication dates within the time restriction unless none were available.

Excluded were non-peer-reviewed publications and literature on hand hygiene in patient care settings other than the perioperative setting. Editorials, news, and brief items were excluded. Low-quality evidence was excluded when higher-quality evidence was available, and literature outside the time restriction was excluded when literature within the time restriction was available.

Number of Source Documents

In total, 182 research and non-research sources of evidence were identified for possible inclusion, and of these, 85 were cited in the guidance document. See Figure 1 in the original guideline document for a flow diagram of literature search results.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

I: Randomized controlled trial (RCT) or experimental study, systematic review of all RCTs

II: Quasi-experimental study, systematic review of quasi-experimental studies or combination of quasi-experimental and RCTs

III: Non-experimental studies, qualitative studies, systematic review of non-experimental studies, combination of non-experimental, quasi-experimental, and RCTs, or any or all studies are qualitative

IV: Clinical practice guidelines, position or consensus statements

V: Literature review, expert opinion, case report, community standard, clinician experience, consumer experience, organizational experience (quality improvement, financial)

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Articles identified in the search were provided to the project team for evaluation. The team consisted of the lead author and two evidence appraisers. The lead author divided the search results into topics and assigned members of the team to review and critically appraise each article using the Association of periOperative Registered Nurses (AORN) Research or Non-Research Evidence Appraisal Tools as appropriate. The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score. The appraisal score is noted in brackets after each reference in the original guideline document, as applicable.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The collective evidence supporting each intervention within a specific recommendation was summarized and the Association of periOperative Registered Nurses (AORN) Evidence Rating Model (see the "Rating Scheme for the Strength of the Recommendations" field) was used to rate the strength of the evidence. Factors considered in the review of the collective evidence were the quality of the evidence, the quantity of similar evidence on a given topic, and the consistency of evidence supporting a recommendation. The evidence rating is noted in brackets after each intervention in the original guideline document.

Rating Scheme for the Strength of the Recommendations

1: Strong Evidence: Interventions or activities for which effectiveness has been demonstrated by high quality evidence from rigorously-designed studies, meta-analyses, or systematic reviews, or rigorously-developed clinical practice guidelines

Evidence from a meta-analysis or systematic review of research studies that incorporated evidence appraisal and synthesis of the evidence in the analysis

Supportive evidence from a single well-conducted randomized controlled trial (RCT)

Guidelines that are developed by a panel of experts, that derive from an explicit literature search methodology, and include evidence appraisal and synthesis of the evidence

1: Regulatory Requirement: Federal law or regulation

2: High Evidence: Interventions or activities for which effectiveness has been demonstrated by evidence from:

Good quality systematic review of RCTs

High quality systematic review in which all studies are quasi-experimental or a combination of RCTs and quasi-experimental studies

High quality quasi-experimental study

High quality systematic review in which all studies are non-experimental or include a combination of RCTs, quasi-experimental, and non-experimental studies. Any or all studies may be qualitative.

High quality non-experimental studies

High quality qualitative studies

Good quality clinical practice guideline, consensus or position statement

3: Moderate Evidence: Interventions or activities for which the evidence has been demonstrated by evidence from:

Good quality systematic review in which all studies are quasi-experimental or a combination of RCTs and quasi-experimental studies

Good quality quasi-experimental study

High or good quality literature review, case report, expert opinion, or organizational experience

4: Limited Evidence: Interventions or activities for which there are currently insufficient evidence or evidence of low quality

Supportive evidence from a poorly conducted research study

Evidence from non-experimental studies with high potential for bias

Guidelines developed largely by consensus or expert opinion

Non-research evidence with insufficient evidence or inconsistent results

Conflicting evidence, but where the preponderance of the evidence supports the recommendation

5: Benefits Balanced with Harms: Selected interventions or activities for which the Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board is of the opinion that the desirable effects of following this recommendation outweigh the harms

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The Guideline for Hand Hygiene has been approved by the Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board. It was presented as a proposed guideline for comments by members and others. The guideline is effective September 1, 2016.

Evidence Supporting the Recommendations

References Supporting the Recommendations

Adams AB. Surgical hand antisepsis: where we have been and where we are today. *Perioper Nurs Clin*. 2010;5(4):443-8.

AST standards of practice for surgical attire, surgical scrub, hand hygiene and hand washing. Littleton (CO): Association of Surgical Technologists (AST); 2008 Apr 13 [accessed 2016 Jun 27].

Boyce JM, Pittet D. Guideline for hand hygiene in health-care settings: recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *Infect Control Hosp Epidemiol*. 2002 Dec;23(12 Suppl):S3-40. [PubMed](#)

Ellingson K, Haas JP, Aiello AE, Kusek L, Maragakis LL, Olmsted RN, Perencevich E, Polgreen PM, Schweizer ML, Trexler P, VanAmringe M, Yokoe DS, Society for Healthcare Epidemiology of America (SHEA). Strategies to prevent healthcare-associated infections through hand hygiene. *Infect Control Hosp Epidemiol*. 2014 Aug;35(8):937-60. [PubMed](#)

World Health Organization (WHO). WHO guidelines on hand hygiene in health care. Geneva (Switzerland): World Health Organization; 2009. 270 p.

Type of Evidence Supporting the Recommendations

The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score. The appraisal score is noted in brackets after each reference in the original guideline document, as applicable. Also see the original guideline document for the systematic review and discussion of evidence.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- The goal of surgical hand antisepsis is to remove soil and transient microorganisms from the hands of perioperative team members and suppress the growth of resident microorganisms for the duration of the surgical procedure to reduce the risk that the patient will develop a surgical site infection (SSI). Safe and effective surgical hand antiseptics rapidly and persistently remove transient microorganisms and suppress the growth of resident microorganisms with minimal skin and tissue irritation.
- Refer to the original guideline document for additional discussion of potential benefits of specific

interventions.

Potential Harms

- The World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and the Society of Healthcare Epidemiology of America/Infectious Diseases Society of America (SHEA/IDSA) recommend avoiding hand washing in hot water because repeated exposure to hot water can irritate the skin and may lead to dermatitis or bacterial colonization.
- The SHEA/IDSA recommends avoiding use of soaps containing the antiseptic triclosan in the health care setting due to an assessment of benefits and harms. Evidence is lacking to establish clinical benefit from use of triclosan compared to other antiseptics. The harms of triclosan may include environmental contamination and the potential for development of bacterial resistance.
- The WHO and the CDC recommend reviewing information from the manufacturer regarding any known interactions between products used to clean hands, skin care products, and gloves. Oil-containing lotions have been associated with altered integrity of latex rubber gloves, reduced persistent effects of hand antiseptics, and bacterial contamination of the lotion.
- Patients may be especially sensitive to the fragrance of hand hygiene products.
- The WHO recommends avoiding the testing of new hand hygiene products during seasons of low humidity because health care personnel may have more skin reactions in this weather and the results of the end-user evaluation could be affected by this seasonal variation. In a European field study, researchers investigated factors that influenced the testing of alcohol-based hand rubs and found that test periods during colder seasons were significantly associated with skin reactions.
- The SHEA/IDSA recommends conducting a point-of-care risk assessment to guide placement of dispensers. Based on the risk assessment, the health care organization may decide to provide patients and visitors with nontoxic hand hygiene products because cognitively impaired, behavioral health, or substance abuse patients may be injured by ingestion of alcohol-based hand rub.
- The WHO also recommends careful consideration for placement of dispensers in areas with patients who are likely to ingest the product, such as disoriented elderly patients, psychiatric patients, young children, or patients with alcohol dependence.

Qualifying Statements

Qualifying Statements

- These recommendations represent the Association's official position on questions regarding optimal perioperative nursing practice.
- No attempt has been made to gain consensus among users, manufacturers, and consumers of any material or product.
- Compliance with the Association of periOperative Registered Nurses (AORN) guideline is voluntary.
- AORN's recommendations are intended as achievable and represent what is believed to be an optimal level of patient care within surgical and invasive procedure settings.
- Although they are considered to represent the optimal level of practice, variations in practice settings and clinical situations may limit the degree to which each recommendation can be implemented.
- AORN recognizes the many diverse settings in which perioperative nurses practice; therefore, this guideline is adaptable to all areas where operative or other invasive procedures may be performed.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Mobile Device Resources

Resources

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Wood A, Conner RL. Guideline for hand hygiene. In: 2016 Guidelines for Perioperative Practice. Denver (CO): Association of periOperative Registered Nurses (AORN); 2016 Sep. p. e27-e48. [85 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2016 Sep

Guideline Developer(s)

Association of periOperative Registered Nurses - Professional Association

Source(s) of Funding

Guideline Committee

Association of periOperative Registered Nurses (AORN) Guidelines Advisory Board

Composition of Group That Authored the Guideline

Lead Author: Amber Wood, MSN, RN, CNOR, CIC, Senior Perioperative Practice Specialist, AORN Nursing Department, Denver, Colorado

Contributing Author: Ramona L. Conner, MSN, RN, CNOR, Editor-in-Chief, Guidelines for Perioperative Practice, AORN Nursing Department, Denver, Colorado

Team Members: Rodney W. Hicks, PhD, RN, FNP-BC, FAANP, Professor, Western University of Health Sciences, Pomona, California; Bernard C. Camins, MD, MSc, Associate Professor of Medicine, Division of Infectious Diseases, University of Alabama at Birmingham, Healthcare Epidemiologist, UAB Health System, Medical Director, UAB Hospital Employee Health and UA HSF Employee Health, Birmingham; Barbara L. Nalley, MSN, CRNP, CNOR, Manager, Anne Arundel Medical Group, Annapolis, Maryland; Heather A. Hohenberger, BSN, RN, CIC, CNOR, CPHQ, Quality Improvement Consultant, Perioperative Services, Indiana University Health, Indianapolis; Jocelyn M. Chalquist, BSN, RN, CNOR, Surgical Services Educator, Aurora Medical Center-Kenosha, Wisconsin; Lisa Spruce, DNP, RN, CNS-CP, ACNS, ACNP, CNOR, FAAN, Director of Evidence-based Perioperative Practice, AORN Nursing Department, Denver, Colorado; Mary C. Fearon, MSN, RN, CNOR, Perioperative Practice Specialist, AORN Nursing Department, Denver, Colorado; Jay Bowers, BSN, RN, CNOR, TNCC, Clinical Educator, WVU Health Care, Morgantown, West Virginia; Missi Merlino, MHA, RN-BC, CNOR, Staff Nurse II, Baylor Scott & White Health, Temple, Texas; Nathalie Walker, MBA, RN, CNOR, Member of the Louisiana Nursing Supply and Demand Commission, a subcommittee of the Health Works Commission of Louisiana, Metairie; Sandy Albright, MSHM, BSN, RN, CNOR, Clinical Consultant, Cardinal Health, Dublin, Ohio

Financial Disclosures/Conflicts of Interest

No financial relationships relevant to the content of this guideline have been disclosed by the authors, planners, peer reviewers, or staff.

Guideline Status

This is the current release of the guideline.

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Available to subscribers from the [Association of periOperative Nurses Web \(AORN\) site](#)

.

Print copies: Available for purchase from the [AORN Web site](#) .

Availability of Companion Documents

The following is available:

Evidence table. Guideline for hand hygiene. 2016 Sep. 13 p. Available from the [Association of periOperative Nurses \(AORN\) Web site](#) .

Additional implementation tools, including clinical FAQs, online learning modules, videos and community discussions are available from the [AORN Web site](#) .

Documents related to the evidence rating model, hierarchy of evidence, and expanded appraisal tools are available from the [AORN Web site](#) .

In addition, an AORN Guidelines for Perioperative Practice eBook mobile app is available from the [AORN Web site](#) .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on March 7, 2017. The information was not verified by the guideline developer.

Copyright Statement

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions.

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouse® (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the [NGC Inclusion Criteria](#).

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.